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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/565,163	01/19/2006	Fredrik Gunnarsson	0091-0250PUS1	7302

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EXAMINER	
MONIKANG, GEORGE C	
ART UNIT	PAPER NUMBER
2614	

NOTIFICATION DATE	DELIVERY MODE
03/23/2009	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

Office Action Summary	Application No.	Applicant(s)	
	10/565,163	GUNNARSSON, FREDRIK	
	Examiner	Art Unit	
	GEORGE C. MONIKANG	2614	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *31 December 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-29* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-29* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☒ Certified copies of the priority documents have been received in Application No. 10/,565,163.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 12/31/2008 has been entered.

Response to Arguments

1. Applicant's arguments filed 12/31/2008 have been fully considered but they are not persuasive.

With regards to applicants arguments that the combined teachings of Heed et al and Nelson fail to disclose the phase shifting for side signals and a signal processor. The examiner maintains his stands. Nelson discloses a signal processor (*Nelson, col. 5, lines 23-32: processed signals*) and phase shifting of signals (*Nelson, col. 21,lines 38-45*) which would have been obvious to use the phase shifted signals of Nelson (*Nelson, col. 21,lines 38-45*) to shift the side signals of Heed et al to increase the degree of fidelity perceived in stereo effects.

With regards to the applicant's argument that the there is no motivation to combine the teachings of Heed et al and Nelson because Heed et al discloses its speakers to be within 17 cm of each other while Nelson discloses its speakers having to

be at least 5 degrees apart. Examiner maintains his stand. The speakers of Nelson being 5 degrees apart could be within 17 cm apart.

Claim Rejections - 35 USC § 101

2. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1-13 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claims 1-13 are rejected under 35 U.S.C. 101 as not falling within one of the four statutory categories of invention. Supreme Court Precedent and recent Federal Circuit decisions indicate that a statutory "process" under 35 U.S.C. 101 must be tied to another statutory category (such as a particular apparatus) or transform underlying subject matter (such as an article or material) to a different state or thing. While the instant claim recites a series of steps or acts to be performed, the claim neither transforms underlying subject matter nor is positively tied to another statutory category that accomplishes the claimed method steps, and therefore does not qualify as a statutory process. For example the method including the step of *processing, producing and providing* is of sufficient breadth that it would be reasonably interpreted as a series of steps completely performed mentally, verbally or without a machine.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. Claims 1-10, 12, 14-23, 25 & 27-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Heed et al, WO 01/39548, in view of Nelson, US Patent 6,760,447 B1. (Heed et al is cited in IDS filed 1/19/2006)

Re Claim 1, Heed et al discloses a method of processing an input audio stereo signal comprising two input signals, for reproduction of a processed stereo signal in an audio stereo reproduction system comprising at least one pair of loudspeaker elements (*abstract*), the method comprising the steps of: a) providing a mid input signal (M) and a side input signal (S) (*fig. 1; col. 3, lines 7-30*), b) producing a left output signal for transmission to a left loudspeaker in said pair, which is, or is equivalent to, the sum of the mid input signal (M) and the side input signal (S) (*fig. 1; col. 3, lines 7-30*), c)

producing a right output signal for transmission to a right loudspeaker in said pair, which is, or is equivalent to, the sum of the mid input signal (M) and the side signal (S) phase shifted 180.degree. (*fig. 1; col. 3, lines 7-30*), but fails to disclose a signal in the frequency range 4 kHz-9 kHz phase shifted at least 45.degree. but no more than 135.degree. relative to the other signal prior to or at the production of the left and right output signals. However, Nelson does (*col. 21, lines 38-45*).

Taking the combined teaching of Heed et al and Nelson as a whole, one skilled in the art would have found it obvious to modify the method of processing an input audio stereo signal comprising two input signals, for reproduction of a processed stereo signal in an audio stereo reproduction system comprising at least one pair of loudspeaker elements (*abstract*), the method comprising the steps of: a) providing a mid input signal (M) and a side input signal (S) (*fig. 1; col. 3, lines 7-30*), b) producing a left output signal for transmission to a left loudspeaker in said pair, which is, or is equivalent to, the sum of the mid input signal (M) and the side input signal (S) (*fig. 1; col. 3, lines 7-30*), c) producing a right output signal for transmission to a right loudspeaker in said pair, which is, or is equivalent to, the sum of the mid input signal (M) and the side signal (S) phase shifted 180.degree. (*fig. 1; col. 3, lines 7-30*) of Heed et al with signal in the frequency range 4 kHz-9 kHz phase shifted at least 45.degree. but no more than 135.degree. relative to the other signal prior to or at the production of the left and right output signals as taught in Nelson (*col. 21, lines 38-45*) to increase the degree of fidelity perceived in stereo effects.

Re Claim 2, the combined teachings of Heed et al and Nelson disclose the method according to claim 1, wherein the signal in the frequency range 6 kHz-9 kHz is phase shifted at least 45.degree. but no more than 135.degree. with respect to the other signal (*Nelson, col. 21, lines 38-45*).

Re Claim 3, the combined teachings of Heed et al and Nelson disclose the method according to claim 1, wherein in steps b) and c) the mid input signal (M) is attenuated by a factor .alpha. (*Heed et al, col. 3, lines 7-30*).

Re Claim 4, the combined teachings of Heed et al and Nelson disclose the method according to claim 1, wherein: in step a) the mid input signal (M) is obtained as the sum of a left input signal (L) and a right input signal (R), and in step a) the side input signal (S) is obtained as the difference of the left input signal (L) and the right input signal (R) (*Heed et al, col. 3, lines 7-30*).

Re Claim 5, the combined teachings of Heed et al and Nelson disclose the method according to 3, wherein the attenuation factor .alpha. is in the range -3 dB to -15 dB (*Heed et al, col. 3, lines 43-46*).

Re Claim 6, the combined teachings of Heed et al and Nelson disclose the method according claim 3, wherein the attenuation factor .alpha. is in the range -6 dB to -12 dB (*Heed et al, col. 3, lines 31-34*).

Re Claim 7, the combined teachings of Heed et al and Nelson disclose the method according to claim 3, wherein the attenuation factor .alpha. (*Heed et al, col. 5, lines 8-15*).

Re Claim 8, the combined teachings of Heed et al and Nelson disclose the method according to claim 1, wherein the loudspeaker elements are closely located (*Heed et al, col. 5, lines 44-48*).

Re Claim 9, the combined teachings of Heed et al and Nelson disclose the method according to claim 1, wherein the pair of loudspeaker elements consists of a pair of identical loudspeaker elements being acoustically isolated from each other, and located within less than one quarter of the shortest wavelength emitted by the elements, or, if the shortest wavelength emitted by the elements is less than 68 cm, less than 17 cm (*Heed et al, col. 6, lines 48-59*).

Re Claim 10, the combined teachings of Heed et al and Nelson disclose the method according to claim 1, whereinin that substantially all of the side input signal (S) or the mid input signal (M) is phase shifted approximately 90.degree. (*Heed et al, col. 3, lines 7-30*).

Re Claim 12, the combined teachings of Heed et al and Nelson disclose the method according to claim 1, but fail to disclose wherein the phase shift is accomplished by digital signal processing by a Hilbert transform. Official notice is taken that both the concepts and advantages of using a digital signal processor to accomplish the phase shift are well known in the art. It would have been obvious to use digital processing to accomplish the phase shift since digitized sounds will have better quality.

Claim 14 has been analyzed and rejected according to claim 1.

Claim 15 has been analyzed and rejected according to claim 2.

Claim 16 has been analyzed and rejected according to claim 3.

Claim 17 has been analyzed and rejected according to claim 4.

Claim 18 has been analyzed and rejected according to claim 5.

Claim 19 has been analyzed and rejected according to claim 6.

Claim 20 has been analyzed and rejected according to claim 7.

Claim 21 has been analyzed and rejected according to claim 8.

Claim 22 has been analyzed and rejected according to claim 9.

Claim 23 has been analyzed and rejected according to claim 10.

Claim 25 has been analyzed and rejected according to claim 12.

Claim 27 has been analyzed and rejected according to claim 1.

Claim 28 has been analyzed and rejected according to claim 2.

Claim 29 has been analyzed and rejected according to claim 9.

4. Claims 11 & 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Heed et al, WO 01/39548 and Nelson, US Patent 6,760,447 B1 as applied to claim 1 above, in view of Kraemer, US Patent 6,590,983 B1. (Kraemer is cited in IDS filed 7/5/2006)

Re Claim 11, the combined teachings of Heed et al and Nelson disclose the method according to claim 1, but fail to disclose wherein the phase shift is accomplished by a frequency dependent filter, which is an all pass filter. However, Kraemer does (*Kraemer, col. 7, lines 18-25*).

Taking the combined teachings of Heed et al, Nelson and Kraemer as a whole, one skilled in the art would have found it obvious to modify the method according to

Heed et al and Nelson with wherein the phase shift is accomplished by a frequency dependent filter, such as an all pass filter as taught in Kraemer (*Kraemer, col. 7, lines 18-25*) to add ambience.

Claim 24 has been analyzed and rejected according to claim 11.

5. Claims 13 & 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Heed et al, WO 01/39548 and Nelson, US Patent 6,760,447 B1 as applied to claim 1 above, in view of Desper, US Patent 5,896,456.

6. Re Claim 13, the combined teachings of Heed et al and Nelson disclose the method according to claim 1, but fails to disclose wherein the mid input signal (M) is delayed with a time corresponding to the delay of the phase shifting means. However, Desper does (*Desper, col. 13, lines 38-40*).

7. Taking the combined teachings of Heed et al, Nelson and Desper as a whole, one skilled in the art would have fount it obvious to modify the method according to Heed et al and Nelson with wherein the mid input signal (M) is delayed with a time corresponding to the delay of the phase shifting means as taught in Desper (*Desper, col. 13, lines 38-40*) so that an enlarged listening area is perceived by the listener.

Claim 26 has been analyzed and rejected according to claims 7 & 13.

Contact

Any inquiry concerning this communication or earlier communications from the examiner should be directed to GEORGE C. MONIKANG whose telephone number is

(571)270-1190. The examiner can normally be reached on M-F. alt Fri. Off 7:30am-5:00pm (est).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chin Vivian can be reached on 571-272-7848. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/George C Monikang/ 3/14/2009
Examiner, Art Unit 2614

/Vivian Chin/
Supervisory Patent Examiner, Art Unit 2614